EECo Digital Modules and Methods

Q SERIES DATA SHEET
Q 420 Flip-Flop

AUGUST 1966

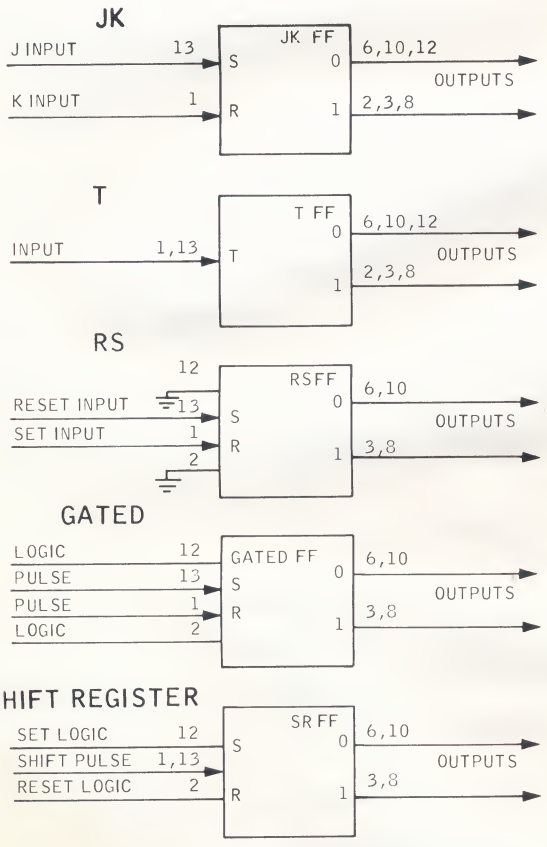
Unclamped . . . 25 kc . . . Germanium
5 VOLT NOISE REJECTION

The Q-420 Unclamped Flip-Flop is a low cost all-welded encapsulated germanium module for mounting on circuit boards.

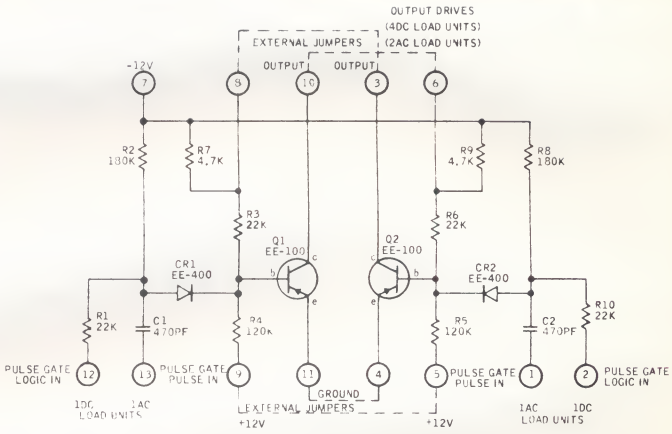
Terminal pins are component leads — spaced on .150" centers. The operating temperature range is −20°C to +65°C.

The Q-420 rejects 5 volts of transient noise on the power supply line and 4 volts on the flip-flop outputs.

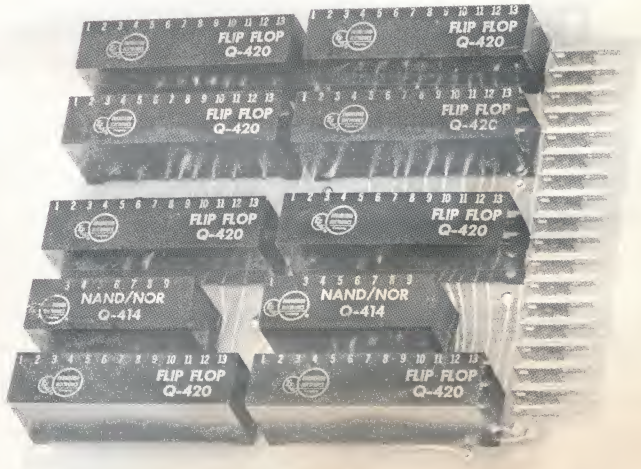
An external jumper change is all that is required to form "JK", "T", "RS", "Gated" or "Shift Register" flip-flops ,as shown below.



MORE THAN ONE NUMBER ON A LINE INDICATES AN INTERCONNECTION BETWEEN PINS



CONNECTIONS	5, 9	4, 11	7
VOLTAGE	+12V	ground	−12V
CURRENT DRAIN	0.25 ma		4.0 ma



Typical mounting of Q-420.

ENGINEERED ELECTRONICS Company
1441 East Chestnut Ave. Santa Ana, California 92702
Phone: (714) 547-5651 TWX: 714-531-5522 Cable: ENGELEX
Area Phone Numbers: Boston (617) 275-0540 ■ New York City (201) 444-3220 ■ Washington, D.C. (301) 779-3636 ■ San Francisco (408) 253-5951

Q 420 Flip-Flop

Unclamped . . . 25 kc . . . Germanium

ELECTRICAL SPECIFICATIONS (NAND LOGIC)

INPUT:	Min.	Max.	Units
Frequency			
Pulse Gate Logic	0	12.5	kc
Pulse Gate Pulse	0	25.0	kc
Rise Time, Pulse Gate Pulse	.....	1.5	μsec
True Level, Pulse Gate Logic	0	−0.2	volts
False Level, Pulse Gate Logic	−6.0	−12.0	volts
Amplitude Pulse Gate Pulse* (Positive-going)	5.8	12.0	volts
Enable Time, Pulse Gate	5.0	15.0	μsec
Disable Time, Pulse Gate	2.0	8.0	μsec
Noise Rejection (for transients)			
A.C. Inputs	1.75	.....	volts peak to peak
Circuit Outputs	4.0	.....	volts peak to peak
Power Supply (−12V line)	5.0	.....	volts peak to peak
Input Load			
Pulse Gate Logic	.....	1.0	dc load unit
Pulse Gate Pulse	.....	1.0	ac load unit

OUTPUT:	Min.	Max.	Units
Rise Time (No Load)	.....	1.5	μsec
Fall Time (No Load)	.....	5.0	μsec
True Level	0	−0.2	volts
False Level	−6.0	−12.0	volts
DC Drive Capability	.....	4.0	dc load unit
AC Drive Capability	.....	2.0	ac load unit

POWER REQUIREMENTS:

−12V, ±5%	.....	4.0	ma
+12V, ±5%	.....	0.25	ma

*Unless inputs to these units are coming from clamped Q-series circuits, care must be taken that the amplitude of the pulse gate pulse does not exceed the false level at the pulse gate logic input, if the pulse is to be inhibited.

For example, with a −8 vdc logic input, the pulse input must not exceed 8 volts in amplitude or it may trigger the circuit.

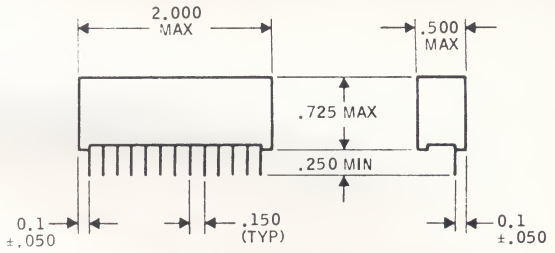
PHYSICAL SPECIFICATIONS

Terminal Pins: Mounting hole diameter for all pins: 0.040 inch.

Encapsulation: Filled epoxy compound.

Operating Temperature Range: −20°C. to +65°C.

Storage Temperature Range: −55°C. to +85°C.



PRICES

Unit No.		1	100	1K	5K
Q-420	Flip-flop High Noise Rejection (unclamped)	$4.00	$3.60	$3.35	$3.20

Consult factory for higher quantity prices.

LIFE TIME WARRANTY

Engineered Electronics Company hereby warrants standard catalog items of our manufacture to be free from defects. If at any time a module fails in normal service due to defective parts, workmanship or packaging, Engineered Electronics Company will repair or replace the module without charge providing required parts are still available.* In addition, modules damaged by misuse, accident, neglect, or improper installation, will be repaired at cost.

* Except indicators and power supplies.

See the Q-SERIES Catalog and APPLICATION NOTES for information on the complete Q-series line of Germanium and Silicon Modules.

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